

DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 74.28**WELDING INSPECTION REPORT****Resident Engineer:** Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-009932**Date Inspected:** 21-Oct-2009**Project Name:** SAS Superstructure**OSM Arrival Time:** 1200**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1900**Contractor:** Goodwin Steel, UK**Location:** Stoke-on-Trent, UK**CWI Name:****CWI Present:****Yes No****Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** Cable Band**Summary of Items Observed:**

The following report is based on METS observations at Goodwin Steel Castings, Hanley, Stoke on Trent, UK on this date.

The QA Inspector witnessed welding of a Coupon to satisfy the Welding Procedure Qualification requirement for WPS 271. This WPS is for using the Flux Core Arc Welding process. Mr Terry Knall was observed making the weld. The base material used is ASTM A148 cast material. The coupon was welded in the vertical (3G) position. Inter-pass cleaning was accomplished using a mechanical impact device. The coupon was prepared with a double bevel joint configuration. It measured 42 mm thick by 320 mm long, and 246 mm wide. The included angle of the weld grooves was 60 degrees. The qualification was witnessed by a third party (Zürich) as well. A preheat of 160 degrees C was applied and the maximum inter-pass temperature of 425 degrees C was not exceeded. This coupon will be subjected to post weld heat treatment.

The QA inspector received a copy of the Goodwin Steel Castings "Weld Excavation Map" for casting GG29428-2, B7/M-2. The Weld Excavation Map was reviewed for accuracy and compliance with contract documents. The Weld map was revised by Goodwin to correct the cable band type. This first repair cycle is a major repair and requires post weld heat treatment. Caltrans Lot Number B242-227-09 was assigned for tracking purposes.

The QA inspector received a copy of the Goodwin Steel Castings "Weld Excavation Map" for casting GG29429-2, B7/F-2. The Weld Excavation Map was reviewed for accuracy and compliance with contract documents. This first repair cycle is a major repair and requires post weld heat treatment. Caltrans Lot Number B242-229-09 was assigned for tracking purposes.

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The QA inspector received a copy of the Goodwin Steel Castings “Weld Excavation Map” for casting GG29433-7, B8/F-7. The Weld Excavation Map was reviewed for accuracy and compliance with contract documents. This first repair cycle is a major repair and requires post weld heat treatment. Caltrans Lot Number B242-230-09 was assigned for tracking purposes.

The QA inspector received a copy of the Goodwin Steel Castings “Weld Excavation Map” for casting GG29427-6, B6/F-6. The Weld Excavation Map was reviewed for accuracy and compliance with contract documents. This first repair cycle is a major repair and requires post weld heat treatment. Caltrans Lot Number B242-231-09 was assigned for tracking purposes.

The QA inspector received a copy of the Goodwin Steel Castings “Weld Excavation Map” for casting GG29427-8, B6/F-8. The Weld Excavation Map was reviewed for accuracy and compliance with contract documents. This first repair cycle is a major repair and requires post weld heat treatment. Caltrans Lot Number B242-232-09 was assigned for tracking purposes.

The following tensile testing was performed by Goodwin Steel Castings Quality Control Technician, Mr. Rob Freeman. The testing was witnessed and completed today:

GG49422-11, Initial

Yield Strength	413 N/mm ²
Ultimate Tensile Strength	686 N/mm ²
Elongation	24
Reduction of area	45

GG49432-3, Initial

Yield Strength	433 N/mm ²
Ultimate Tensile Strength	602 N/mm ²
Elongation	24
Reduction of area	45

The following tensile testing was performed by Goodwin Steel Castings Quality Control Technician, Mr. Martyn Hilditch. The testing was witnessed and completed today:

GG49420-9, After PWHT

Yield Strength	369 N/mm ²
Ultimate Tensile Strength	559 N/mm ²
Elongation	28
Reduction of area	52

GG49421-4, After PWHT

Yield Strength	416 N/mm ²
Ultimate Tensile Strength	686 N/mm ²
Elongation	31

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Reduction of area 56

GG49421-9, After PWHT

Yield Strength 395 N/mm²
Ultimate Tensile Strength 601 N/mm²
Elongation 27
Reduction of area 51

GG49421-17, After PWHT

Yield Strength 421 N/mm²
Ultimate Tensile Strength 603 N/mm²
Elongation 26
Reduction of area 52

GG49439-1, After PWHT

Yield Strength 404 N/mm²
Ultimate Tensile Strength 597 N/mm²
Elongation 20
Reduction of area 36

Elongation and Reduction of area unacceptable. Defect was found in test sample and retest is required

Summary of Conversations:

The QA Inspector had a conversation with Mr Steve Roberts, Technical Director. The QA Inspector reviewed the heat input requirements of CCO57S1 with Mr Roberts. Following a conversation with J. Lanz, the QA inspector pointed out that the limitations of the CCO on travel speed and heat input apply to each pass completed on the qualification coupon. Mr Roberts strongly disagrees with this.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Nina Choy, (510) 385-5910, who represents the Office of Structural Materials for your project.

Inspected By:	Riegler,Randy	Quality Assurance Inspector
Reviewed By:	Edmondson,Fred	QA Reviewer
